

What is Claimed is:

1. A device for supplying mixed gas to gas burners of radiant heating type having a housing, a plurality of burner assemblies in the housing for combustion of the mixed gas therein, each with a burner chamber for supplying mixed gas of fuel gas and
5 air thereto, and a glass plate placed on top of the housing, comprising:

a plurality of mixing tubes respectively in communication with the burner chambers for supplying the fuel gas and the air thereto;

a plurality of gas nozzles for respectively spraying the fuel gas into the mixing tubes;

10 a plurality of air supply tubes each spaced a distance away from the other end of one of the mixing tubes, for supplying air toward the one of the mixing tubes; and

a fan unit connected to an end of one of the air supply tubes for supplying air thereto.

15 2. The device as claimed in claim 1, wherein the air supply tube has one end spaced from the other end of the mixing tube in a radial direction.

3. The device as claimed in claim 1, wherein the air supply tube has one end spaced from the other end of the mixing tube in a length direction.

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4. The device as claimed in claim 1, wherein the fan unit is on an outside of the housing.

5. The device as claimed in claim 1, further comprising at least one air supply
25 chamber between the air supply tubes and the fan unit for receiving air from the fan unit

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and supplying the air to the air supply tubes.

6. The device as claimed in claim 5, wherein the air supply chamber has a plurality of air supply tubes for other burner assemblies connected thereto in common.

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7. The device as claimed in claim 1, further comprising at least one branch tube having one end connected to the fan unit, and the other end connected to a plurality of the air supply tubes for distributing air from the fan unit to the plurality of air supply tubes.

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8. The device as claimed in claim 1, further comprising a connecting member for connecting the mixing tube to the air supply tube together.

9. The device as claimed in claim 8, wherein the connecting member includes a nozzle holding member formed as a unit for holding the gas nozzle.

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10. The device as claimed in claim 8, wherein the connecting member is fixed to opposite sides of the mixing tube and the air supply tube with fastening means.

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11. The device as claimed in claim 8, wherein the mixing tube, the air supply tube, and the connecting member form a mixing tube assembly having two symmetric members bonded together.

12. The device as claimed in claim 11, wherein the mixing tube assembly includes;

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a first mixing tube assembly having a first mixing tube part forming a first half of the mixing tube, a first air supply tube part forming a first half of the air supply tube, and a plate form of second connection member extended outward from both sides of the first mixing tube part and the first air supply part as one unit to connect the first
5 mixing tube part and the first air supply part as one unit, and

a second mixing tube assembly having a second mixing tube part forming a second half of the mixing tube, a second air supply tube part forming a second half of the air supply tube, and a plate form of second connection member extended outward from both sides of the second mixing tube part and the second air supply part as one
10 unit to connect the second mixing tube part and the second air supply part as one unit, and bonded with the first connection member.

13. The device as claimed in claim 8, wherein the mixing tube, the air supply tube, and the connecting member are injection molded as one unit.

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14. The device as claimed in claim 1, wherein the air supply tube has the other end, facing the other end of the mixing tube, with a sectional area equal to, or greater than a sectional area of the other end of the mixing tube.

20 15. The device as claimed in claim 1, wherein the air supply tube has the other end facing the other end of the mixing tube with a diameter becoming greater than other part to have an expanded tube form.

25 16. The device as claimed in claim 1, wherein the fan unit includes;
a fan, and

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a variable speed motor for varying rotation speed of the fan according to a gas spray rate through the gas nozzle.

17. The device as claimed in claim 1, wherein each one of the mixing tubes is
5 connected to a plurality of air supply tubes for supplying air thereto.

18. A device for supplying mixed gas to gas burners of radiant heating type having a housing, a plurality of burner assemblies in the housing for combustion of the mixed gas therein, each with a burner chamber for supplying mixed gas of fuel gas and
10 air thereto, and a glass plate placed on top of the housing, comprising:

a plurality of mixing tubes respectively in communication with the burner chambers for supplying the fuel gas and the air thereto;

a plurality of gas nozzles for respectively spraying the fuel gas into the mixing tubes;

15 a plurality of air supply tubes each spaced a distance away from the other end of one of the mixing tubes, for supplying air toward the one of the mixing tubes;

a fan unit for supplying air to the air supply tubes; and

at least one air supply chamber between the air supply tubes and the fan unit for receiving air from the fan unit and supplying the air to the air supply tubes.

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19. The device as claimed in claim 18, wherein the air supply chamber is integrated inside of the housing.

20. The device as claimed in claim 18, wherein the air supply chamber has a
25 plurality of air supply tubes of other burner assemblies connected thereto.

21. A device for supplying mixed gas to gas burners of radiant heating type having a housing, a plurality of burner assemblies in the housing for combustion of the mixed gas therein, each with a burner chamber for supplying mixed gas of fuel gas and air thereto, and a glass plate placed on top of the housing, comprising:

a plurality of mixing tubes respectively in communication with the burner chambers for supplying the fuel gas and the air thereto;

a plurality of gas nozzles for respectively spraying the fuel gas into the mixing tubes;

a plurality of air supply tubes each having one end spaced a distance away from the other end of one of the mixing tubes, for supplying air to the one of the mixing tubes;

a fan unit for supplying air; and

at least one branch tube having one end connected to the fan unit, and the other end connected to a plurality of the air supply tubes for distributing air from the fan unit to the plurality of air supply tubes.

22. A device for supplying mixed gas to gas burners of radiant heating type having a housing, a plurality of burner assemblies in the housing for combustion of the mixed gas therein, each with a burner chamber for supplying mixed gas of fuel gas and air thereto, and a glass plate placed on top of the housing, comprising:

a mixing tube assembly including;

a mixing tube having one end in communication with the burner chamber for supplying fuel gas and air to the burner chamber,

an air supply tube formed as one unit with the mixing tube on an outside of the

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mixing tube such that one end thereof is spaced a distance away from the other end of the mixing tube for supplying air to the mixing tube, and

a connecting member for connecting the mixing tube and the air supply tube as one unit;

5 a gas nozzle at a position spaced a distance away from the mixing tube for spraying gas toward the mixing tube; and

a fan unit for blowing air to the air supply tube.

23. The device as claimed in claim 22, wherein the connecting member includes
10 a nozzle holding part for holding the gas nozzle.

24. The device as claimed in claim 22, wherein the connecting member is fixed to opposite side parts of the mixing tube and the air supply tube with fastening means.

15 25. The device as claimed in claim 22, wherein the mixing tube assembly includes;

a first mixing tube assembly having a first mixing tube part forming a first half of the mixing tube, a first air supply tube part forming a first half of the air supply tube, and a plate form of second connection member extended outward from both sides of the
20 first mixing tube part and the first air supply part as one unit to connect the first mixing tube part and the first air supply part as one unit, and

a second mixing tube assembly having a second mixing tube part forming a second half of the mixing tube, a second air supply tube part forming a second half of the air supply tube, and a plate form of second connection member extended outward
25 from both sides of the second mixing tube part and the second air supply part as one

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unit to connect the second mixing tube part and the second air supply part as one unit, and bonded with the first connection member.

26. The device as claimed in claim 22, wherein the mixing tube assembly is
5 formed as one unit by injection molding.

27. The device as claimed in claim 22, wherein the one end of the air supply
tube facing the other end of the mixing tube has a sectional area equal to, or greater than
a sectional area of the other end of the mixing tube.
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28. The device as claimed in claim 1, wherein the one end of the air supply tube
facing the other end of the mixing tube has a diameter becoming greater than other part
to have an expanded tube form.